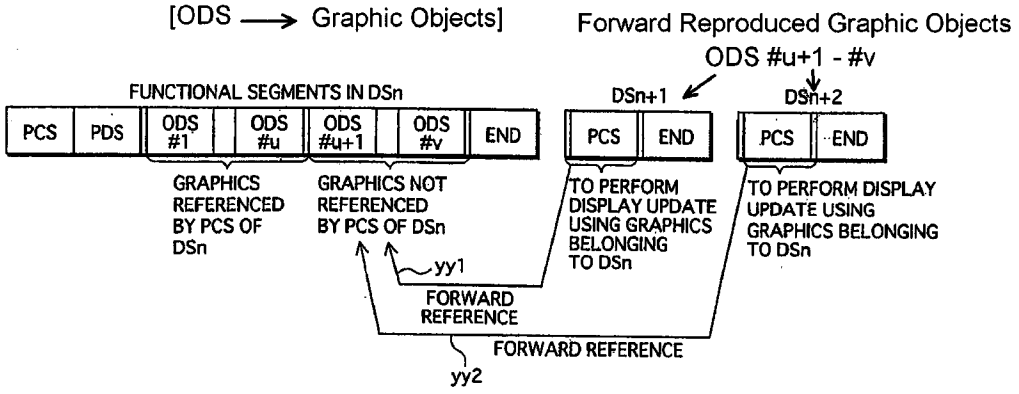
REMARKS

The present invention is able to achieve shortened time intervals for providing graphic updates. According to one embodiment of the present invention as recited in independent claim 1, a recording medium used for storing data comprises a digital stream generated by multiplexing a video stream and a graphics stream, wherein the graphic stream is a sequence of a plurality of packets which include a packet containing control information, and wherein the control information indicates that graphic data contained in a preceding packet in the sequence is to be displayed at a predetermined time in a state of being overlaid on the video stream.

By providing the control information indicating that graphics is to be displayed using graphic data that precedes the control information, it is possible to achieve an efficient technique for overlaying graphics data onto video data within a short period of time since it is not required to repetitively decode graphics data.

One embodiment of the invention is shown in FIGS. 20-24 which depict a moving graphic as one example of the use of the control information as described above [see FIGS. 20-24 and specification page 40 (line 8) – page 43 (line 11)].

FIG. 20



As shown above, the graphic objects ODS #u+1 to ODS #v are stored in the decoding of PCS (DSn) (Presentation Composition Segment) but are not referenced or displayed by the DSn) since they are forward-referenced by the subsequent PCSs of DSn+1 and DSn+2. Since they have already been decoded and stored in the reproduction apparatus there is no decoding time required and display control in the subsequent PCS can be immediately executed.

Figure 22A shows the graphic display of "My heart is fluttering" and Figure 22B shows the coordinates of the movement of such a graphic display on a display screen. As shown by Figures 23 and 24, since the position of the same graphics can be changed merely by using the control information, a graphics update of replacing existing graphics with new graphics can be performed within a short time interval [see specification at Page 42 (Line 10) to Page 43 (Line 11). Repeating the graphics update in such short intervals makes it possible to realize display control of moving graphics smoothly as the reproduction of the moving picture progresses. Accordingly, since the graphics display can be updated using only control information within a short time interval, graphics can easily be brought into synchronization with video according to the present invention and a significant improvement in editing the work can be accomplished.

It is submitted that the above-discussed feature of the control information indicating that graphics is to be displayed using graphic data that precedes the control information is also similarly recited in each of the remaining independent Claims 7 and 13-15 of the present application.

Particularly, independent Claim 7 recites a reproduction apparatus wherein upon reading control information in a graphics stream, a graphics decoder displays graphics which has been generated by decoding graphics data that precedes the control information in the graphics stream, based on the control information. Independent Claim 13 recites a method of recording wherein

the control information indicates that graphics data contained in a preceding packet in a sequence is to be displayed at a predetermined time in a state of being overlaid on the video stream. Independent Claim 14 recites a computer-readable program wherein upon reading control information in a graphics stream, graphics which has been generated by decoding graphics data that precedes the control information in the graphics stream is displayed based on the control information.

Lastly, independent Claim 15 recites a reproducing method, wherein upon reading control information in the graphics stream, graphics is displayed which has been generated by decoding graphics data that precedes the control information in the graphics stream, based on the control information.

The Office Action rejected Claims 7, 13 and 15 as being completely anticipated by applicant's own assigned *Yamane et al.* (U.S. Patent No. 6,181,872).

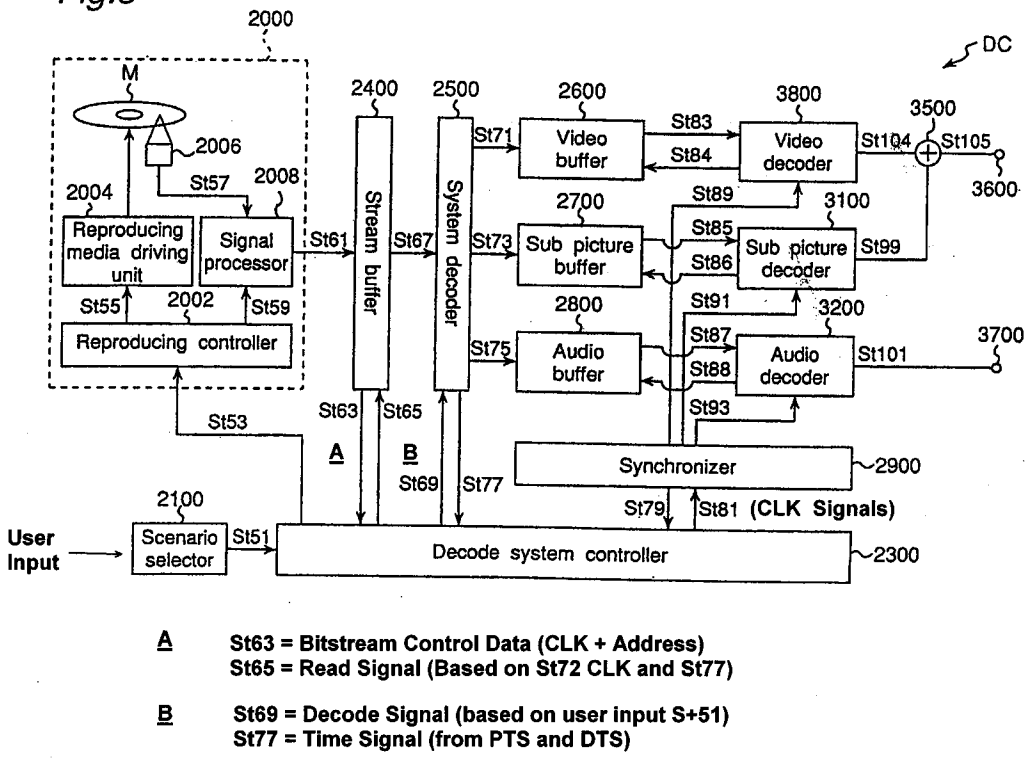
> "An anticipating reference must describe the patented subject matter with sufficient clarity and detail to establish that the subject matter existed in the prior art and that such existence would be recognized by persons of ordinary skill in the field of the invention." *See In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 678, 7 USPQ2d 1315, 1317 (Fed. Cir. 1988).

It is respectfully submitted that the *Yamane et al.* reference neither anticipates nor renders obvious our present claim subject matter, and that the aforementioned features recited in each of the independent Claims 1, 7, 13 and 15, as well as the advantages resulting therefrom, are neither disclosed nor suggested by the *Yamane et al.* reference for the following reasons.

The Office Action relied upon the disclosure in respectively Figures 3 and 26 of the *Yamane et al.* drawings to contend that the graphics decoder transfer graphics generated by decoding graphic data that precedes the control data in the graphic stream to a plane memory,

citing Column 12, Lies 18-29. This cited specification reference is referring to Figure 3 of *Yamane et al.* as follows:

Fig.3



A **St63 = Bitstream Control Data (CLK + Address)**
St65 = Read Signal (Based on St72 CLK and St77)

B **St69 = Decode Signal (based on user input S+51)**
St77 = Time Signal (from PTS and DTS)

As can be determined, neither Figure 3 nor Figure 26, nor the cited paragraphs in the Office Action of Column 12, Lines 18-29, teach the features of our present invention:

> Based on the scenario selection data St51, the decoding system-controller 2300 generates the decoding signal St69 defining the stream Ids for the video, sub-picture, and audio bitstreams corresponding to the selected scenario, and outputs to the system decoder 2500.
>
> Based on the instructions contained in the decoding signal St69, the system decoder 2500 respectively outputs the video, sub-picture, and audio bitstreams input from the stream buffer 2400 to the video buffer 2600, sub-picture buffer 2700, and audio buffer 2800 as the encoded video stream St71, encoded sub-picture stream St73, and encoded audio stream St75.

Basically, Figure 3 discloses a user input signal St51 that can interact with the stripped bitstream control data which is, in essence, a clock and an address to enable the decode system controller 2300 to generate the read signal St65. The system decoder 2500 provides timing information from a presentation timestamp PTS and a decoding timestamp of the smallest control unit in each bitstream to generate the time information signal St77.

The decode system controller further provides a synchronization control data signal or clock St81 to enable a decoding start timing for each of the bitstreams in the correct sequence after decoding. The end result of this structure and the user input is to provide a user defined multimedia bitstream MBS in a real time scenario. See Column 13, Lines 17-30, as follows:

> It is thus possible to reproduce a user-defined multimedia bitstream MBS in real-time according to a user-defined scenario. More specifically, each time the user selects a different scenario, the authoring decoder DC is able to reproduce the title content desired by the user in the desired sequence by reproducing the multimedia bitstream MBS corresponding to the selected scenario.
>
> It is therefore possible by means of the authoring system of the present invention to generate a multimedia bitstream according to plural user-defined scenarios by real-time or batch encoding multimedia source data in a manner whereby the substreams of the smallest editing units (scenes), which can be divided into plural substreams, expressing the basic title content are arranged in a specific time-base relationship.

In summary, *Yamane et al.* discloses a reproduction apparatus that comprises a stream buffer 2400 that outputs the reproduced bitstream St61 at a specific interval based on the read signal St65. Based on the instructions contained in the decoding signal St69, the system decoder 2500 detects and outputs the video, sub-picture, and audio bitstream from the reproduced bitstream St61. In *Yamane et al.*, the graphics data is called a sub-picture.

The reproduction apparatus defined in Claim 7 (present invention) is distinguished from *Yamane et al.* in the following points.

Firstly, they differ in the structure of the stream. The reproduced bitstream St61 of *Yamane et al.* includes video, sub-picture, and audio, but neither the control information nor the graphics data that precedes the control information.

In addition, the present invention and *Yamane et al.* differ in the output timing of the graphics data. In *Yamane et al.*, based on the instructions contained in the decoding signal St69, the system decoder 2500 outputs the graphics (sub-picture) input from the stream buffer 2400 to the sub-picture buffer 27. As apparent from this, in *Yamane et al.* the graphics data is output based on the user instructions contained in the decoding signal St69, and the graphics data is not played back when the control information in the graphics stream is read out.

Lastly, they differ in the control information. In *Yamane et al.*, the scenario selection data St51 is information that indicates IDs of the video, sub-picture, and audio streams. The decoding signal St69 is generated based on the scenario selection data St51. Meanwhile, the scenario selection data St51 is created based on user inputs via the keyboard. Accordingly, the scenario selection data St51 is different from the data that follows the graphics data in the graphics stream. Thus, the scenario selection data St51 differs from the control information of the present invention.

As described above, the present invention and *Yamane et al.* differ from each other in the structure of the stream, in the output timing of the graphics data, and in the control information. The present invention is, therefore, clearly different from the technology of *Yamane et al.*

Our newly drafted Claim 16 is further distinguishable from the *Yamane et al.* reference and adds the feature of an adder overlaying the graphics in the motion picture performing addition for corresponding pixels in the pictures stored in the video plane and the graphics stored in the graphics plane, wherein when reading control data moving from a recording medium, the

graphics decoder transfers graphics which have been generated by decoding graphics data that precedes the control data in the graphic stream to the graphic plane based on that control data.

In contrast to *Yamane et al.*, the present invention discloses that the control information performs a display by using the graphics data that precedes the control information. With this structure, a display position of graphics can be changed by feeding only control information showing new coordinates of the graphics into a reproduction apparatus. Equally, a color of graphics can be changed by feeding only appropriate control information into the reproduction apparatus.

Since a graphics display can be updated using only control information, graphics is easily brought into synchronization with video. This being so, the technique provided by the present invention is suitable for displaying the same graphics while changing its position at a high rate of speed. *Yamane et al.* merely recites that the graphics written in the scenario selection data St51 can be extracted from the stream, but does not disclose the concept of changing graphics display by feeding only control information.

For at least the foregoing reasons, it is submitted that the *Yamane et al.* reference fails to disclose or suggest the following features as recited in independent Claims 1, 7, 13, 15 and 16 of the present application: a recording medium comprising control information indicating that graphic data contained in a preceding packet in a sequence is to be displayed at a predetermined time in a state of being overlaid on a video stream (Claim 1); a reproduction apparatus wherein upon reading control information in a graphics stream, a graphics decoder displays graphics which has been generated by decoding graphics data that precedes the control information in the graphics stream, based on the control information (Claim 7); a method of recording wherein the control information indicates that a graphics data contained in a preceding packet in a sequence

is to be displayed at a predetermined time in a state of being overlaid on the video stream (Claim 13); a reproducing method wherein upon reading control information in the graphics stream, graphics is displayed which has been generated by decoding graphics data that precedes the control information in the graphics stream, based on the control information (Claim 15), and a reproduction apparatus showing a picture constituting a moving picture into a video plane and storing graphics into a graphics plane wherein an adder can overlay the graphics and moving pictures by performing an addition for corresponding pixels in the picture stored in the video plane and the graphics stored in the graphics plane wherein control data from the recording medium, and cause the graphics data in the graphics decoder to transfer graphics which have been generated by decoding graphics data that precedes the control data in the graphic stream to the graphics plane based on that control data (Claim 16).

In view of the above information, it is believed that the case is now in condition for allowance and an early notification of the same is requested.

If the Examiner believes a telephone interview will assist in the prosecution of this case, the undersigned attorney can be contacted at the listed phone number.

Very truly yours,

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